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World Environment Day 2026:
A Global Call for Climate Action

Innovazione, ambiente e valorizzazione della ricerca

Francesco Matteucci

5 GIUGNO 2026

Giornata Mondiale dell'Ambiente 2026:

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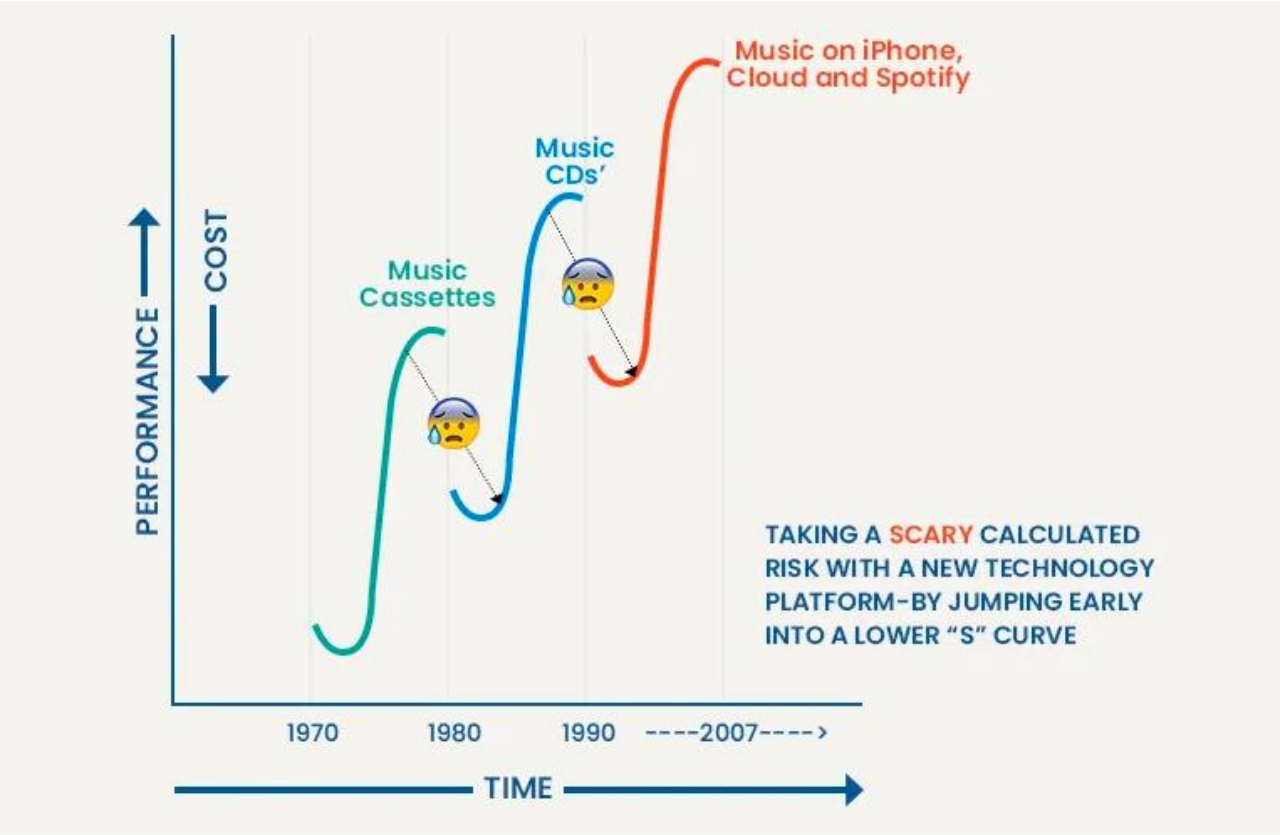
Innovation process is not a linear process.



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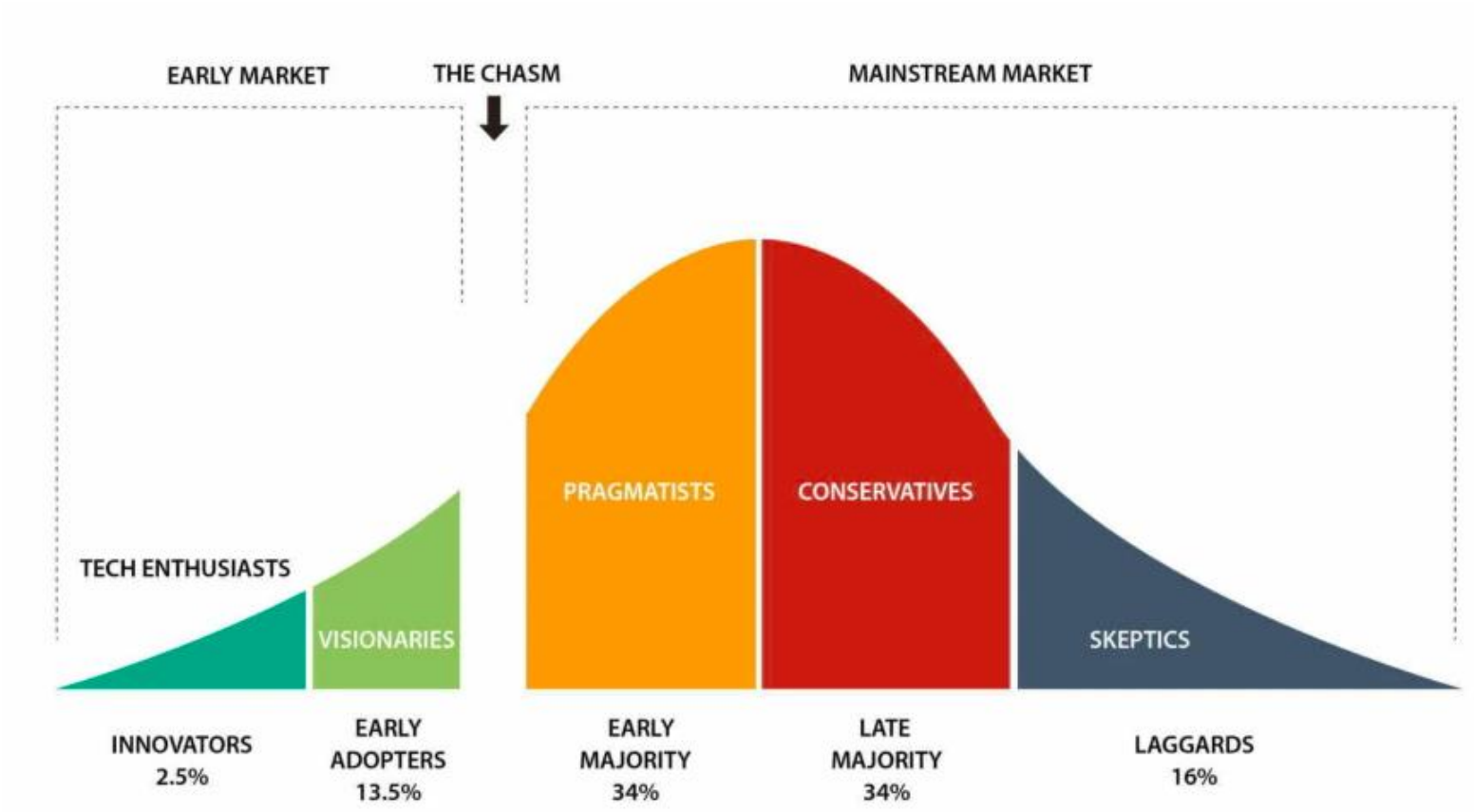
Innovation adoption: laggards are many more than innovators.



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Enabling factors

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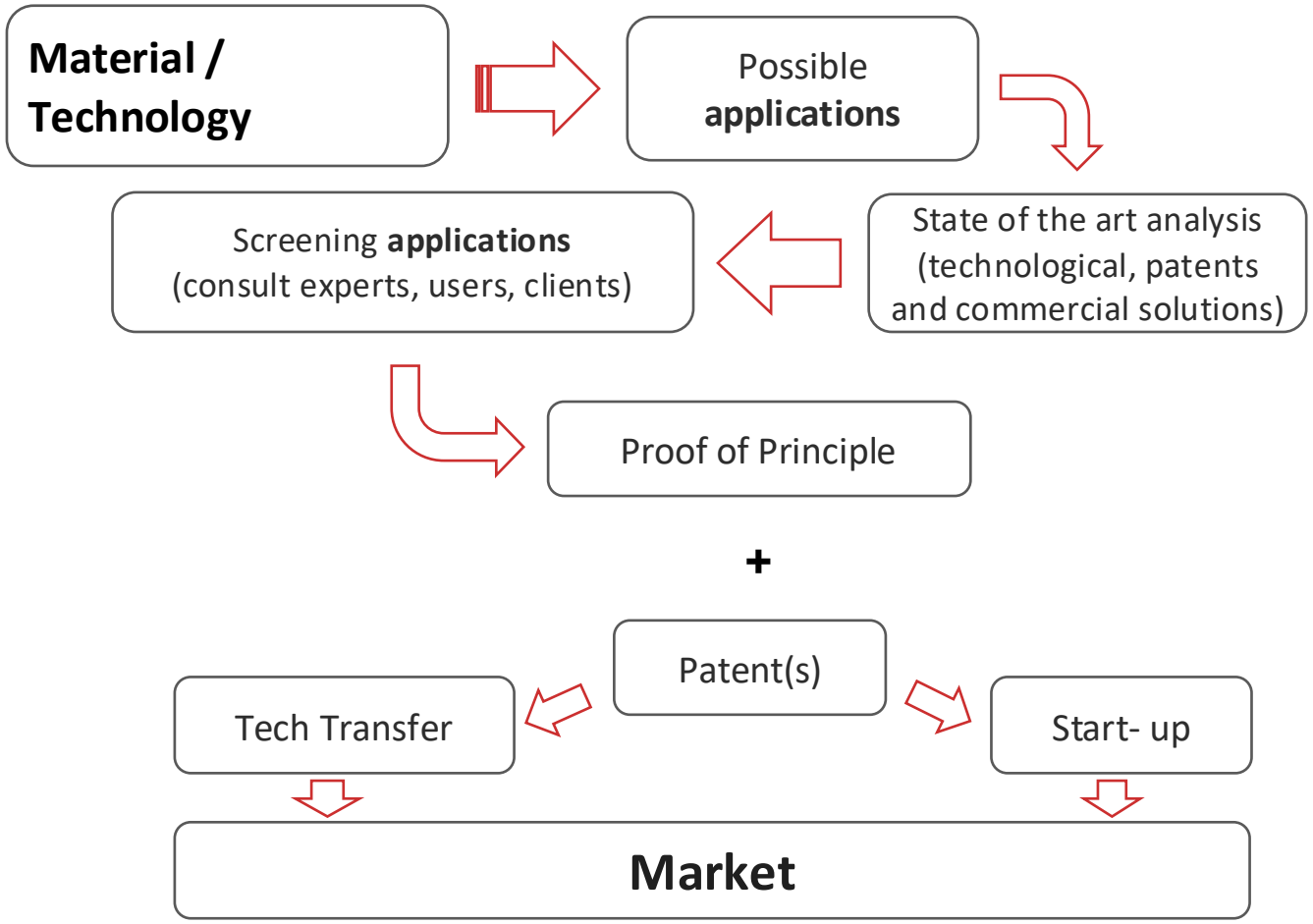
Technology Push and/or Market Pull



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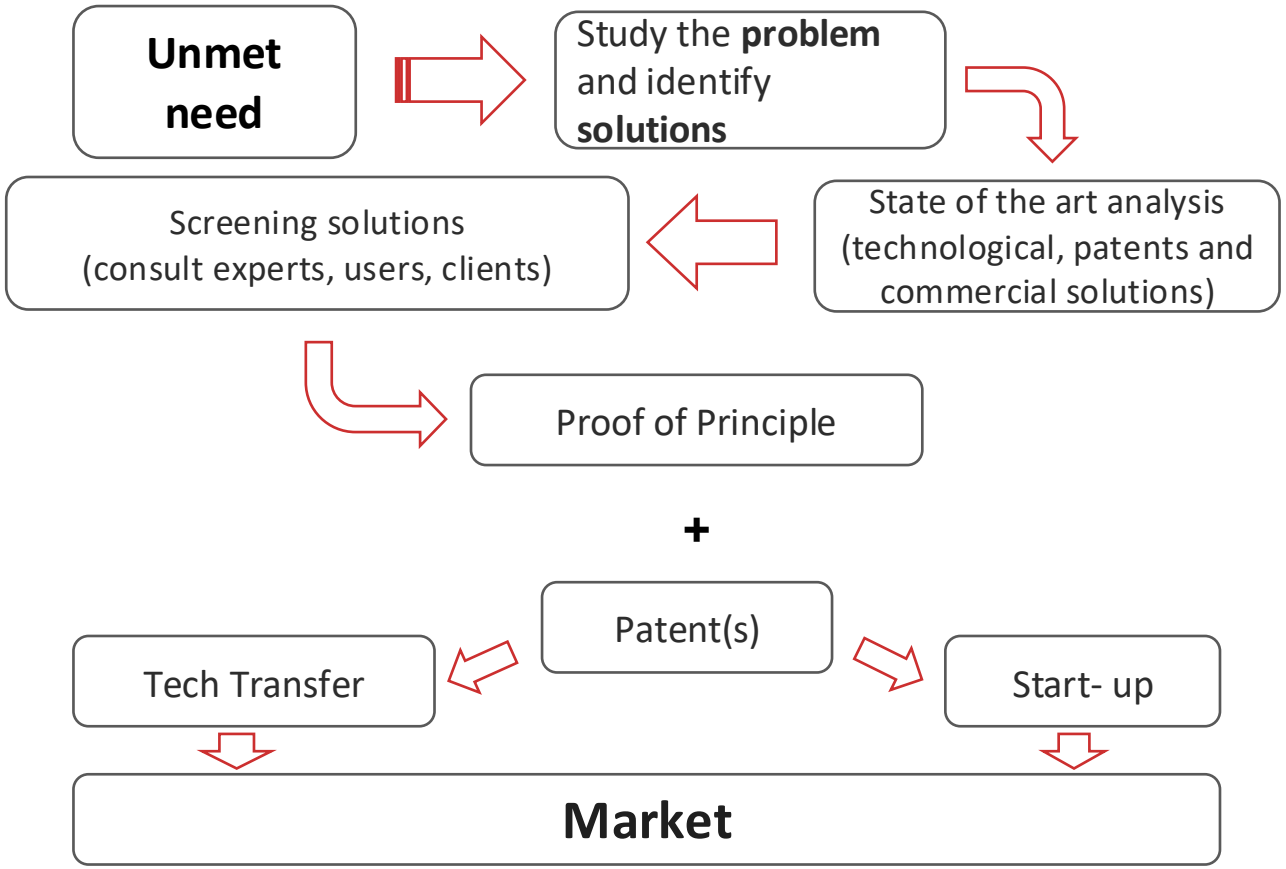
Technology Push and/or Market Pull



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However,
«Innovation» is more than just «technology»

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- Customers (the ones that actually pay for it)
- Business (so it can actually make money)
- Team (the ones that actually make it happen)
- Funding (so they can make it happen)
- ……..

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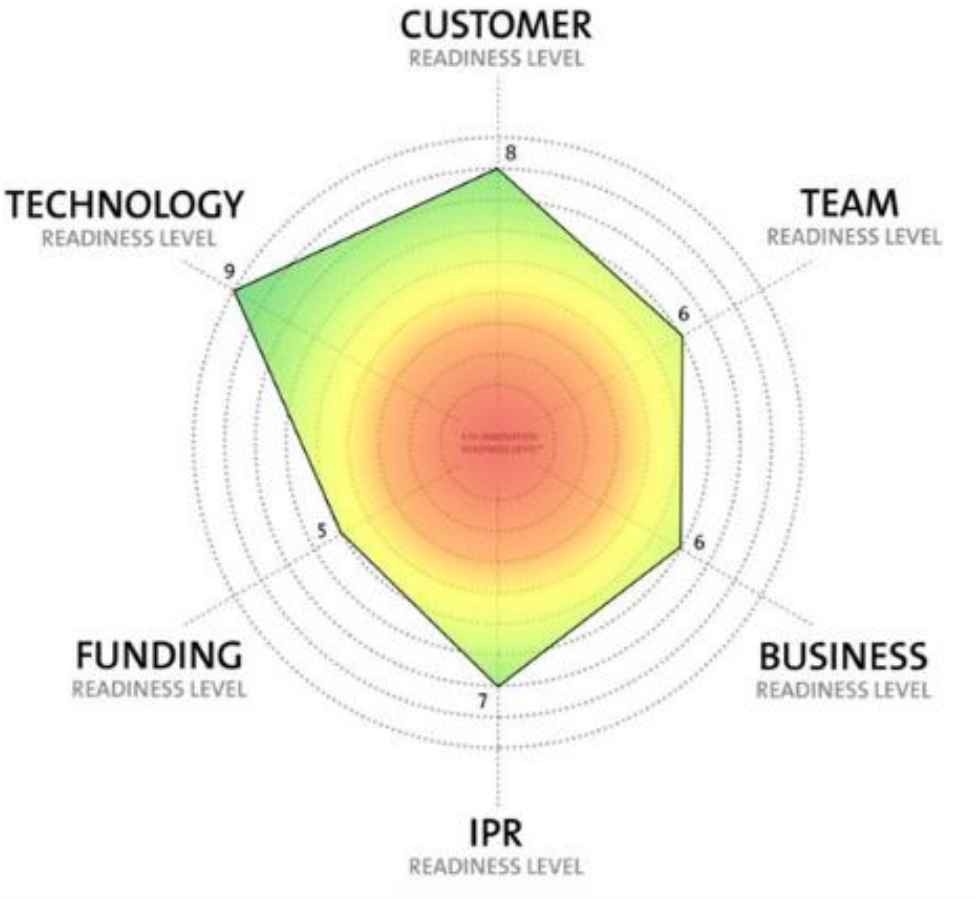

KTH VETENSKAP OCH KONST

KTH Innovation Readiness level

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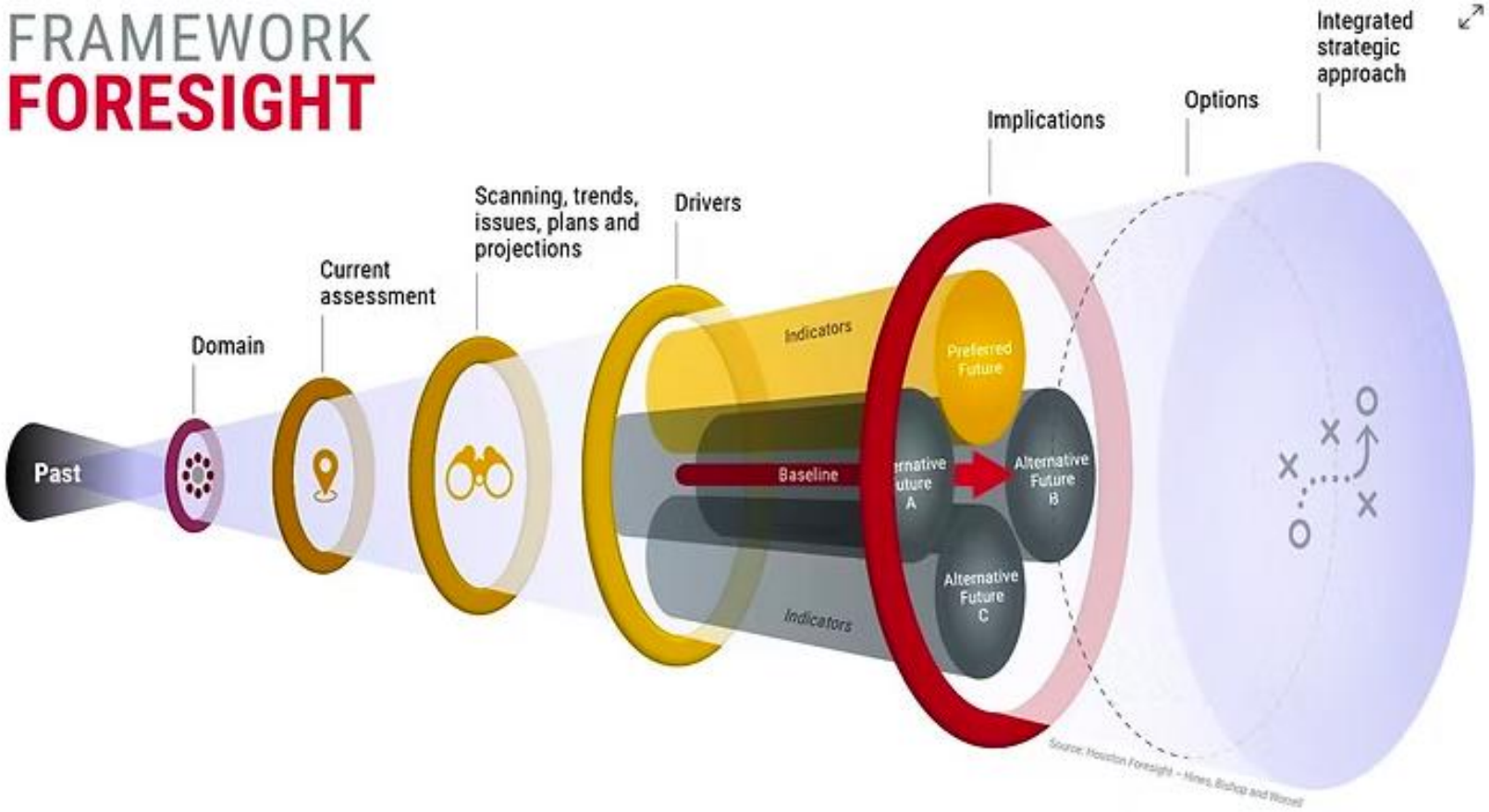

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Preliminary Market Analysis

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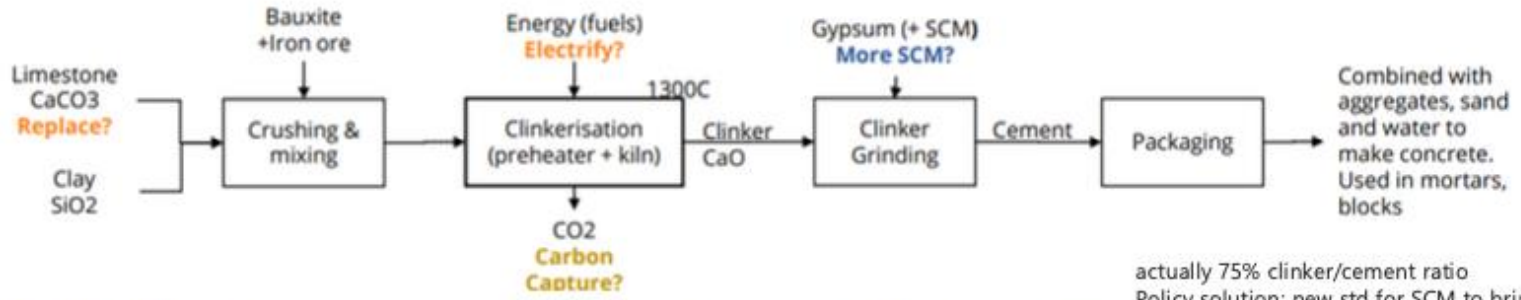
Cement challenges and opportunities

European Innovation Council



Cement production

- Most cement produced today is Ordinary Portland Cement (OPC) made by combining cement clinker, gypsum and supplementary cementitious material (SCM).
- Manufacture of 1kg of Portland cement releases around 0.7 -1kg of carbon dioxide. 50-60% from the calcination of the limestone, most of the remainder from combustion of fossil fuels necessary to achieve the required kiln temperatures.

Source: Cleantech Group

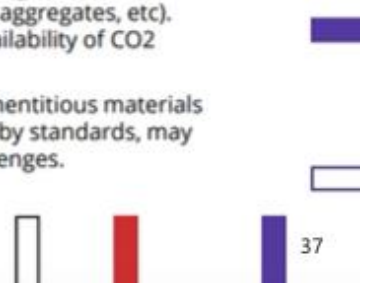
1,3kwh/kg of cement

Emissions reduction approaches

actually 75% clinker/cement ratio
Policy solution: new std for SCM to bring the ratio to 60% (e.g. use of calcined clay)

- **Clinker substitution** Use of increasing amounts of supplementary cementitious materials (SCM) in place of OPC. Constrained by prescriptive standards and availability of SCM.
- **Carbon capture:** separation of CO2 from other gases so it can be stored underground or used in product (fuels, aggregates, etc). Attracts additional cost and constrained by availability of CO2 transport and storage infrastructure.
- **New cements and process:** Use different cementitious materials or processes which, if scaled and/or approved by standards, may address cost and/or materials availability challenges.

40%, EU cement industry is already using alternative fuels



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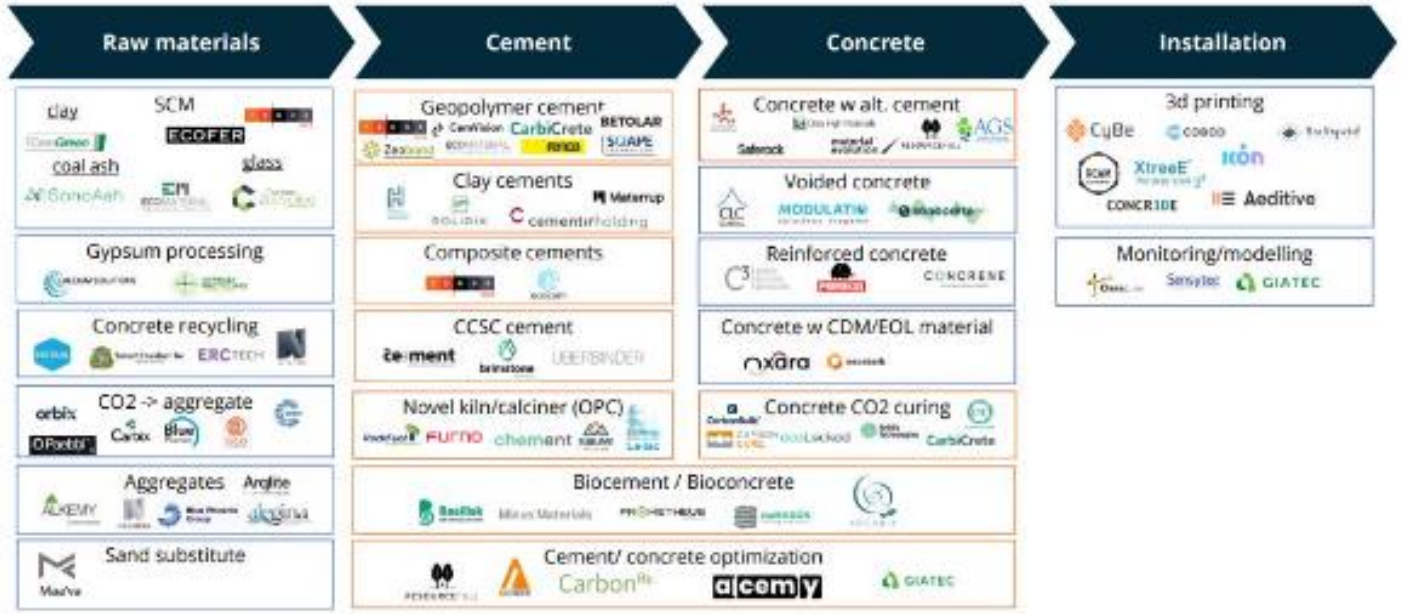
Low carbon cement and concrete: value chain



Market Dynamics

- Geopolymers (alkali-activated), calcined clay, composite (containing SCM), Carbonatable calcium silicate (CCSC) can be used in place of Ordinary Portland Cement to lower emissions.
- Low carbon cements can be used in combination with innovations in concrete production and installation which tend to reduce the amount of concrete used. These include innovations include formula optimisation, reinforced or voided concrete, and 3D printing.

Cleantech Group

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Customers and/or users

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Customer Readiness Level – CRL

Livello di Prontezza con i Clienti

9	Vendite diffuse e scalabili. Grande numero di utenti attivi con crescita sostanziale.
8	Prime vendite commerciali e processo di vendita implementato. Numero sostanziale di utenti attivi.
7	Clienti in test esteso o prime vendite di prova. Numero ridotto di utenti attivi.
6	Benefici confermati dai primi test con i clienti.
5	Interesse consolidato e relazioni instaurate con i clienti.
4	Problema/bisogno confermato da più clienti o utenti.
3	Primo riscontro di mercato ottenuto.
2	Bisogni specifici nel mercato identificati.
1	Ipotesi di possibili bisogni nel mercato.

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Innovation is not isolation:

Team

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Team Readiness Level – TMRL

Livello di Prontezza del Team

9	Organizzazione ad alte prestazioni, ben strutturata a tutti i livelli, che viene mantenuta, si sviluppa e performa nel tempo.
8	Organizzazione professionale in essere (consiglio, CEO, management, staff).
7	Team e cultura ben funzionanti. Piano di crescita per espandere il team e costruire l'organizzazione nel tempo.
6	Team fondatore complementare, diversificato e impegnato con tutte le competenze e capacità necessarie per iniziare a costruire il business.
5	Team fondatore iniziale con le principali competenze e capacità necessarie. Il team concorda su proprietà, ruoli, obiettivi e visioni.
4	Presente un champion con chiara idea della direzione (startup/altro). Diverse competenze necessarie in essere; avviato un piano per completarle.
3	Alcune delle competenze necessarie in essere per verificare/sviluppare l'idea. Definite le competenze necessarie (e piano per trovarle).
2	Competenze limitate per iniziare a verificare l'idea. Prima idea delle competenze o risorse aggiuntive necessarie.
1	Mancanza di competenze/risorse necessarie per verificare l'idea. Scarsa comprensione dei bisogni del team (tipicamente un individuo).

Understand the needs

Define a Job description and a budget

Promote your position

Attract and recruit the best talents

Retain the Best Talents (nice environment, team buidling, training, padel courts, stock options, MBO,…)

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- **Fundraising strategy**:
- Do you need money?
- How much ?
- From who ?
- When: Plan A, B and at least C..

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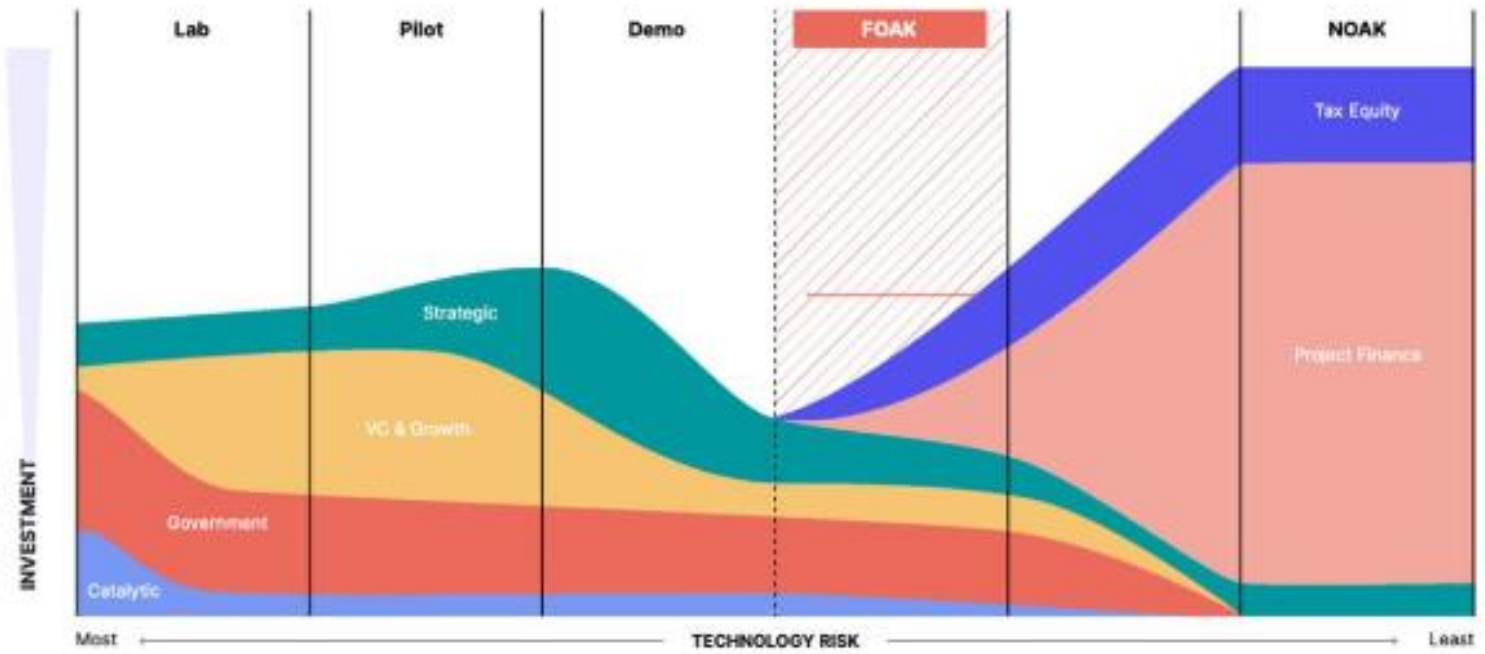

Capital availability against project stage (Source: Sightline Climate)

- REVENUE
- BANK, DEBT-FINANCING
- SOFT FUNDING

EQUITY

- BIGGER INVESTMENT FUNDS
- SMALL VC FUNDS
- CORPORATE VENTURE CAPITAL
- FAMILY OFFICES
- ACCELERATORS
- BUSINESS ANGELS
- CROWDFUNDING
- PERSONAL NETWORK
- FRIENDS & FAMILY
- FOUNDERS' CASH & CREDIT CARDS

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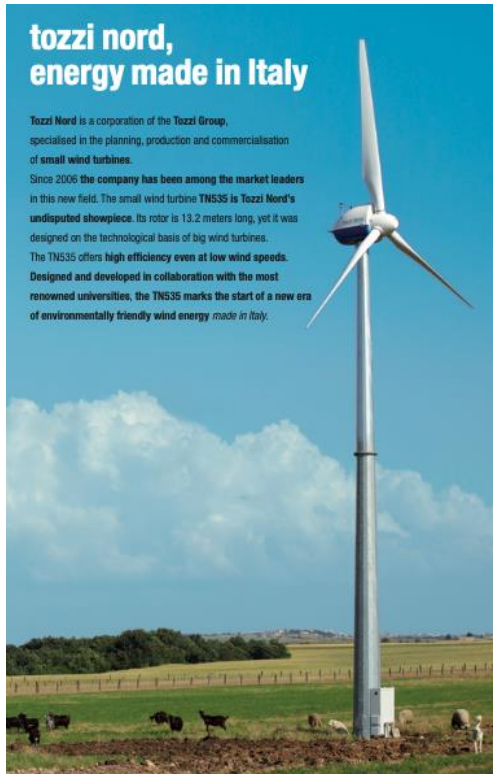
Business model: Knowledge valorization

Know-how licensing

Access to Technology from a Development Partner:

In this partnership-based licensing approach, the technology owner collaborates with “development partners” that contribute resources or capabilities, which the technology owner does not have available internally due to cost, time constraints, complexity, or risk.



Source: Empowering The Licensing Capabilities Of EIC-Funded Startup Companies, J. Cosmopoulos, T. Bereuter, A.M. Sassen, F. Matteucci, I. Stefanic, I. Obieta, and I. Arzimanoglou, Les Nuovelles, 84-93, June 2024

ForeverWater

European Innovation Council

Electrochemical Solution for PFAS Removal in Water

Challenge: PFAS (“forever chemicals”) are highly persistent, toxic, and costly to remove.

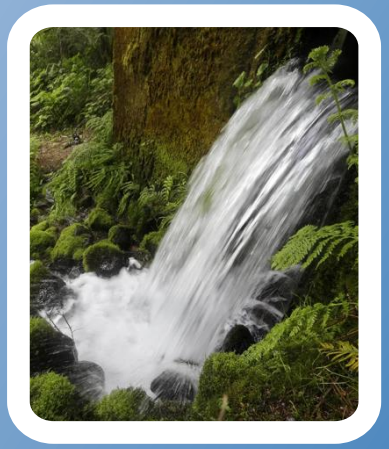
Solution: Complete PFAS degradation with novel graphene-enabled electrochemical system.

Impact: Safe, sustainable water treatment for industry and the environment.

EIC Transition Support: Scaling from lab to pilot through on-site validation.

Test Beds

Semiconductor WW



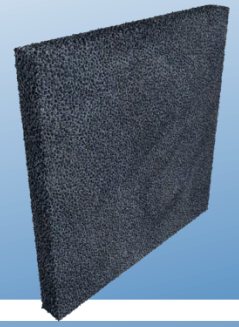
Groundwater

Landfill leachate

From PoC to Prototype

1st GATE REVIEW

Develop and optimize 3D graphene anodes.



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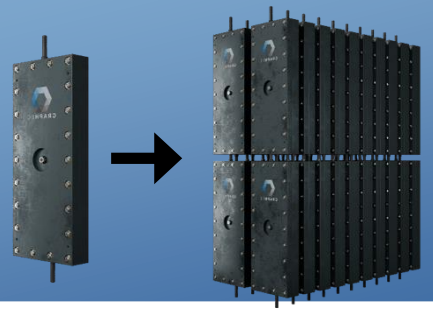
Fraunhofer IKTS

2nd GATE REVIEW

Demonstrate efficient PFAS degradation at pilot scale.



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cea leti

AMPHOS 21

3rd GATE REVIEW

Validation in three real test beds treating semiconductor WW, groundwater and landfill leachate.

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GRAPHEC

cea leti

AMPHOS 21

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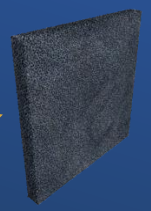
Semiconductor test bed

2025	2026	2027	2028



M1

Material Enhancement

TRL 4

M2

Spin-off constitution

GRAPHEC

M3

Iterative Prototype Construction

TRL 5

M4

System Integration

TRL 6

Validation in Real World Setting

M5

TRL 7

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